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Tribal Folk Medicinal Plant Resources of South Asia

Editors

Radhika Johari and Madhav Karki

Medicinal and Aromatic
Plants Program in Asia (MAPPA)
IDRC/SARO



The International Development Research Centre
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Tribal Folk Medicinal Plant Resources of South Asia

Report of the South Asia Conference on Tribal Folk Medicinal Plant Resources
September 4 - 6, 1996, Tirupati, India

Editors

**Radhika Johari
Madhav Karki**

Medicinal and Aromatic Plants Program in Asia (MAPPA)
(Previously, the IDRC Medicinal Plants Network - IMPN)
International Development Research Centre
Canada

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Foreword

Tribal and folk medicinal practices comprise one of the most significant components of primary health care provision in the South Asian context. With over 2000 tribal groups composed of millions of people, and still more communities living outside of the, "mainstream," the countries of South Asia - Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka - together include a wealth of medicinal practices and traditions, most of which remain undocumented and not well understood.

The reliance of many millions of people on traditional systems of medicine, and their importance in the cultures of those who practise them, is being increasingly recognized, as are the numerous and ever growing contributions made by folk and tribal medicinal systems to the better documented systems of Ayurveda, Unani, Naturopathy, Homeopathy and Allopathy. Tribal folklore and medicinal practices are known to be a vital source of leads for important discoveries of allopathic drugs. Proper harnessing and preservation of this knowledge base is thus essential in order to achieve the WHO goal of Health for All by the Year 2000.

Yet throughout the region, a recurrent theme has emerged. Folk and tribal medicinal practices are declining, and in many cases, are facing extinction. In the majority of cases, the threat to herbal folklore and tribal medicine is directly attributable to two factors: increasing commercialization and modernization, as well as growing demands for plant resources with medicinal properties, leading to a deteriorating natural resource base, and a lack of significant financial and income-generating opportunities to encourage the practice of traditional medicine in light of more financially lucrative options.

There is thus an urgent need to develop ways and means of protecting and promoting both plant diversity as well as the indigenous medicinal systems which are dependent upon them. Further, it is vital to encourage and work with the people who practise these systems of medicine in order to safeguard their traditions and knowledge and to assist them in managing their resources in a way that is advantageous to them as well as to the rest of the world. This must be done before it is too late since many medicinal plants and associated cultural knowledge are already on the verge of extinction and may soon be lost forever.

New Delhi
July, 1999

Roger Finan
Regional Director, IDRC, SARO and
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Introduction



Introduction

The following report presents a summary of the proceedings and outcome of the South Asia Conference on Tribal and Folk Medicinal Plant Resources, which together with a parallel Seminar on Pharmacology and Folk Medicine, was jointly organized by the IDRC Medicinal Plants Network (IMPAN), the Herbal Folklore Research Centre in Tirupati and the Sri Padmavati Mahila Visvavidyalayam University from September 4 to 6, 1996.

The idea of hosting the Conference stemmed from a discussion held between IMPAN, and Dr. Vedavathy, who is presently Head of the Herbal Folklore Research Centre (HFRC), Tirupati. During a monitoring session in March 1996 of the IDRC-assisted project at SV Arts College, which is primarily engaged in the collection of ethnomedico-botanical data related to medicinal plants used by tribal groups in Andhra Pradesh. IMPAN and HFRC together expressed and explored the need for the adoption of a wider and more comprehensive approach to the study of folk and tribal systems of medicine to that currently being used. The classical ethnobotanical methodology centres on a predominantly taxonomical approach which focuses on documentation of medicinal plants and their uses without taking into account the social and cultural contexts of their usage. This is vital for an understanding of those systems of medicine which are dependent upon them. What is required is a much broader multidisciplinary approach, using a combination of anthropological and ethnobotanical concepts to evolve a new methodology. Such a methodology, and the resulting information base could be used as the foundation for research and development activities in the area of folk and tribal medicinal plant resources.

It was thus decided to organize a conference focusing on tribal and folk systems of medicine within the South Asian context at an opportune time. The list of attendees was drawn from amongst the IMPAN partnership network, as well as from known specialists working in this field. Tribal and folk medicine specialists working with different indigenous groups were invited from within the region as well as from different eco-geographical zones within India. At the regional level, while invitations were extended to all of IDRC's partner countries, only invitees from Nepal and Sri Lanka were able to attend the Conference at short notice, while within India, the southern, northern, western and eastern regions were well represented. Representatives of the North-East, however, were noticeably absent. Specialists in tribal and folk medicinal systems were asked to make their presentations according to a given format, designed to obtain salient information required for broader discussions. The programme for the Conference as well as the guidelines given for the preparation of status reports based on case studies of tribal medicine are attached in Appendices One and Two, respectively, at the end of the report.

In addition to specialists in tribal medicine, those with known expertise in areas relevant to the theme of the Conference - marketing; conservation and collection, harvesting and storage of medicinal plants were invited. The objective of the Conference was thus to provide a forum for a multidisciplinary group of professionals to explore common solutions to common problems facing the medicinal plants sector in South Asia, within the specific context of tribal and folk medicinal practices in the region. The Conference also provided an opportunity to re-emphasize the value and importance of these systems of medicine to people today as well as in the future. In general, it covered the following areas:

- Ethnobotany and Different Tribal Medicinal Systems/Practices: Papers were presented on the status of specific tribal medical practices in selected areas throughout the region.
- Marketing of Medicinal Plants: The participants discussed at length the marketing systems of medicinal plants prevailing at the local level through cooperatives and similar arrangements. They shared their extensive knowledge of the private sector and of government policies in order to explore and develop appropriate methodologies to make the practice and development of tribal and folk medicine in local communities a viable income-generating activity.
- Conservation of medicinal plants: The participants explored different approaches to conservation at the local level, such as village level seed banks, the use of sacred groves for *ex-situ* conservation, development of nurpulation during IMPN-initiated activities.
- Members of the Yannadi, Irula and Nataka Tribes of Andhra Pradesh who worked with the IMPN-sponsored Herbal Folklore Research Centre in Tirupati shared their expertise and launched, in conjunction with IMPN and the Herbal Folklore Research Centre, the book, "Tribal Medicine of Andhra Pradesh," a documentation of many of their uses of plants in providing medical treatment.
- Representatives of sponsoring and partner organizations attended the Workshop as resource persons and observers. They included IMPN; the International Network for Bamboo and Rattan (INBAR); the Department of Tribal Welfare, Government of India; Government officials from Andhra Pradesh and observers from the communities and related educational facilities and universities in the region.

The three day Conference, structured to include formal presentations of case studies conducted within the region, as well as panel discussions on topical subjects, resulted in a comprehensive exploration of the status of tribal and folk medicinal resources and the formulation of strategies for long-term sustainable use of these resources. This report provides an overview of the Conference deliberations, highlighting key issues - constraints as well as opportunities - in this area, as well as abstracts of the papers presented. The main outcome of the meeting, the Tirupati Declaration, which is a novel action-oriented strategic framework document, aimed at providing a foundation for all future efforts directed towards the conservation and sustainable use of tribal and folk medicinal resources in South Asia, is also included in the report.

Chapter 1

Sharing of Endangered Wisdom - Reflections on the Conference

Chapter 1

Sharing of Endangered Wisdom- Reflections on the Conference

Before reflecting on the key deliberations of the Conference, it is important to clarify what we mean by tribal and folk systems of medicine since this forms the basis for an understanding of the key issues involved in promoting and rejuvenating this sector.

A tribal or folk system of medicine is a set of dynamic medicinal practices, based on the principles of trial and error, and on empirical evidence, which has evolved over a period of time - given a set of supports necessary for its growth and development - within a unique socio-cultural and physical environment. Some of the medical practices it involves may remain unmodified over long stretches of time, with others being altered to suit changing conditions. While the specialized nature of such systems contributes to their value, it also raises a number of issues which must be addressed in order to preserve and sustain them.

The first point concerns the knowledge transmission systems of folk and tribal medicine. It became apparent during the Conference that the custodians of herbal folklore are generally individuals or groups of families who have inherited their knowledge through oral tradition passed down generations, as opposed to the classical systems of medicine such as Ayurveda, Unani and Tibetan medicine which have been systematized and codified into well established texts. This knowledge, which is often regarded as a family treasure, is not accessible even to the rest of the community to which the practitioner belongs and is therefore vulnerable to destruction and loss. Its preservation and extraction from "living libraries," of traditional medicine practitioners is thus of paramount importance.

A second point that emerges from the above discussion concerns the socio-economic background of the practitioners and users of these forms of medicine. Tribal and other indigenous communities have traditionally enjoyed a symbiotic relationship with their environment. Following a subsistence economy, they have seen themselves as custodians of the natural resources available to them and have used these resources in a sustainable manner, based on principles of need, as opposed to greed. However, with the rise of the Nation State and the market economy, custody of forest resources has shifted from tribal communities to governments, with their resulting exploitation as marketable commodities. This has in most cases led to drastic depletion of natural forests and loss of biodiversity, including medicinal plants. Furthermore, development projects such as hydroelectric schemes and the forces of industrialization and modernization, have in many cases sacrificed indigenous and tribal communities to benefit society at large. The resulting displacement of these communities from their traditional habitats and the destruction of their means of livelihood and traditional ownership patterns have been deeply traumatising. Forced to become part of a larger socio-economic and political system, they have in many cases become alienated from their traditions, with the resulting loss of cultural identity, knowledge and belief systems. This erosion of knowledge is in some cases even more serious than the erosion of biodiversity.

It is thus evident from the above discussion that any attempts to promote and sustain tribal medicinal resources, which consist not just of botanical material (medicinal plants) but also of associated folklore and cultural knowledge, must involve a multi-sectoral and multi-disciplinary approach which takes these issues into account. This was clearly highlighted during the Conference deliberations which are presented below, organized into major themes, each consisting of a cluster of issues. It should be noted that these themes are all linked and should therefore be tackled simultaneously in a holistic manner.

Broadening the Scope of Ethnobotanical Research

The first major theme that emerges from the issues described above concerns the need to broaden the scope of ethnobotanical research relating to TFM (Tribal and Folk Medicine). It was recognition of this need which led to the hosting of the Conference, during which its relevance and importance become increasingly pertinent. While a number of studies have been carried out in the region inventorying medicinal plants and their uses, they have on the whole ignored the socio-cultural context of the tribal systems of medicine which depend upon them. What is therefore required is the development of a new action-oriented data collection methodology, which, combining the principles and concepts of relevant disciplines such as ethnobotany and anthropology, would produce a more comprehensive profile of ethnomedical practices of tribes and indigenous groups within the region. Further, participants of the Conference implicitly pointed to the need to evolve a mechanism for establishing the identity of various ethical, ecological, technical, institutional, infrastructural and other factors, which may have a bearing on the documentation and publication of TFM-related indigenous knowledge and practices.

Participants recommended the use of standardized proforma for collecting data on relevant areas such as the names of tribes or communities using particular species of medicinal plants in their systems of medicine; ecosystem specificity or agro-climatic conditions required to obtain or maximize curative properties of the plants; identification of rare or endangered medicinal species and assessment of their conservation status; assessment of supply and demand of medicinal plants within the community as well as to outside agencies; current extraction methods; pre-processing of plants if any; times, seasons, stage of plant development and customs and rituals relating to the collection of plants; preservation of raw material as well as processed drugs if any; details of ailments treated by tribal medical practitioners (TMPs) using particular plant species; extent of frequency of these ailments within the community; the therapeutic setting; perceptions of ailments; the social and economic status of TMPs as well as their levels of knowledge and expertise, and gender dimensions with regard to the practice of TFM. The information thus gathered could be systematized and disseminated in the form of directories of plant material sources and TMPs and their particular expertise. Country-wide databases could be established identifying tribal and folk medicinal practices, plant products and practitioners and users of these systems in tribal, rural and semi-urban areas. These databases, it was felt, would be invaluable in developing projects aimed at producing self-sustaining and sustainable systems of tribal and folk medicine.

It was also emphasized during the Conference that TMPs and indigenous healers would have to play a crucial role in fulfilling the information requirements described above since they are the key repositories of this information. It is important therefore that they too should benefit from the knowledge thus acquired and that this knowledge should be attributed to them. By knowing how the external world interprets and uses their knowledge, and by exposure to the knowledge systems

and practices of other groups, they may come to value their own systems and to conserve their medicinal resources (plants as well as knowledge) more vigorously than before.

However, traditional medical knowledge and innovations in different countries are coming under increasing threat, both internally, as a result of neglect, as well as externally, as a result of the infringement of intellectual rights (IPR). Of these two sources of threat, the latter is more serious. Conference discussions therefore highlighted the need to protect these valuable knowledge systems under the Trade Related Intellectual Property Rights (TRIPS) Agreement of the World Trade Organization (WTO).

Networking and Coordination

A related theme that follows on from that described above concerns the need for networking and coordination, and the creation of linkages between local healers and interest groups working in the area of tribal and folk medicinal plant resources.

Despite the present emphasis on south to south and south to north transfers of knowledge, there are still no networks linking TMPs, research and government institutions, investors, enterprises and other local interest groups such as NGOs. These, it was felt, could play an important role in reducing isolation by linking individuals and institutional initiatives and promoting coordination and linkages between independent activities on similar problems and issues, thereby also avoiding duplicity of efforts.

It was recommended that linkages be built up on different levels, encompassing tribal and village communities, local bodies such as *Gram Panchayats* and *Mandals*, State and Central Government bodies such as *Panchayat Raj* institutions, Tribal Development Projects and State and National level bodies. Standing committees belonging to research and development institutions could provide both a coordinated focus with regard to evolving managerial strategies and expertise for planning and development activities within this sector. Furthermore, the establishment of networks of tribal folk healers would play an important role in influencing policy development related to the management of the resource base at the domestic as well as international level; commercialization/trade arrangements; development of novel herbal drugs based on the knowledge possessed by healers and exchange of knowledge on healing techniques. This would empower TMPs in their search for long-term protection of their knowledge (Intellectual Property Rights) and management of their resources, and given adequate legal, financial, technical and managerial support, it would ensure their ability to generate returns for their knowledge, innovations and value additions.

The Policy Environment

However, for networks to be effective, and TMPs to be empowered to achieve the objectives described above, a supportive policy environment at the central, state as well as local levels, must exist with regard to tribal groups as well as the development of tribal medicine.

At a more general level, the latest *Panchayat Raj Act* passed by the Indian Parliament contains special provisions (the 73rd and 74th Amendments), giving more power to tribal *panchayats* and increasing their rights over their resources. However, at the ground level, they remain the poorest and most economically deprived groups, exploited by agencies such as the Forest Department

and forest contractors as casual labour, and by contractors dealing with medicinal plants. This situation is repeated throughout the region, as was evident from the case studies presented at the Conference. There is therefore a need for the formulation of a national policy which addresses specific issues relating to tribal communities, including rehabilitation and employment of displaced tribals in order to mitigate the effects of industrialization.

More specifically, it is clear that tribal medicine is subject to a confusing array of policies and regulations administered by a diverse group of government agencies, including those related to Agriculture, Forestry, Health and Family Welfare. The Conference therefore recommended the adoption of a holistic approach to its development, a first step of which would involve a review of existing policies affecting tribal medicine in the region.

Of greatest relevance to tribal medicine would be forest policies concerning access of tribals to non-timber forest produce, including medicinal plants. Throughout the region, forest policies have imposed restrictions regarding access to these resources, resulting in friction and erosion of traditional rights of land tenure and access. They therefore need to be reviewed in the context of tribal development, and should safeguard the tenurial and monopoly rights of collectors of medicinal plants and other forest produce which grow in the vicinity of local communities, in addition to recognizing tribal concepts of traditional land ownership and use patterns.

Other important policies, identified during the Conference, which need to be reviewed in the context of development of tribal medicine include intellectual property rights as well as drug policies relating to medical standards and quality controls.

Raising the Status of Tribal and Folk Medicine as an Effective Health Care Resource

All of the themes, together with the proposed measures described above, are concerned with raising the status of TFM and integrating it into the mainstream. This is important for a number of reasons. Firstly, it would encourage tribal confidence in their own tested and low cost systems of medicines and would generate the interest of young tribals; secondly it would open up a larger user base, as well as a market, for time-tested health remedies, and finally it would increase recognition and public awareness, and would sensitize policy makers to the issues involved in preserving and sustaining tribal and folk systems of medicine.

Other measures aimed at achieving this objective, highlighted at the Conference, include the development of a Curriculum for education on tribal and folk medicine with formal recognition through the award of diplomas etc. and the inclusion, with appropriate cautions, of tested tribal and folk medicines in dispensaries located in or near tribal areas.

The latter measure, described above, points to the necessity of providing a scientific basis for traditional medicine systems. This would address pharmaceutical issues relating to vital areas such as quality assurance, evaluation and standardization, and specifications relating to purity, strength and good manufacturing practices for tribal/folk medicinal products and drugs, thus increasing safety, reliability and public confidence.

Participants at the Seminar on Pharmacology pointed out the need to develop a holistic multi-sectoral approach, geared specifically to the needs and requirements of TFM. This would include testing the quality of formulations and their standardization, and testing the efficacy of tribal and folk medicine using extensive clinical and field trials. Such a methodology would not just focus on the isolation of active principles, since these are known to vary according to geographical and environmental conditions. Proper screening would be conducted for the selection and cultivation of medicinal plants with a higher quantity of active principles and range of activities.

Some of the key areas of pharmaceutical research highlighted at the Seminar included identification of plant materials of higher quality; biotechnological research to produce raw materials and phytopharmaceuticals; research on the validity of claims and uses of tribal medicines at the local level; studies on the pharmaceutical effects and toxicology of various ingredients used in herbal medicines and their compatibility, and problems associated with herbal drug production such as the stability and shelf life of phyto-medicinal products.

Sustainable Management of the Resource Base

Turning now to issues related to the sustainable management of the medicinal plants resource base, the case studies presented at the Conference clearly revealed ongoing erosion of the resource base throughout the region. This is clearly due to destructive collection practices, with no emphasis being laid on the conservation and sustainable use of the resource, and commercial exploitation of medicinal plants resulting from growing demands both nationally and internationally. Given their economically disadvantaged position, collectors from tribal and rural populations are particularly vulnerable to exploitation by traders, who obtain the collected species from them through unfair exchange systems. The problem is further compounded by the fact that the collectors are untrained and compete with each other to harvest plants available from the wild, resulting in a destructive utilization pattern and collection of immature plants which have little or no medicinal value. These factors, coupled with the lack of attention and priority given to cultivation of medicinal plants in the region, have led to the depletion of many valuable medicinal plant species, with several endangered species being on the verge of extinction. There is thus an urgent need to promote the sustainable production, collection and management of the medicinal plants resource base.

It was agreed during the conference that the most effective strategy for achieving this objective would be one that combined *in situ* and *ex situ* approaches involving the development of propagation and cultivation techniques for selected prioritized plants, in order to re-introduce rare and endangered species, multiplied in village-level gardens and ethnobotanical reserves, back into the wild. There should also be mandatory deposition of material in national gene banks of medicinal and aromatic plants, with appropriate agreements and protection. Community participation would form a vital component of such protection schemes, with Tribal Cooperative Societies, Forest User Groups and Forest Committees formed at the village level to manage these herbal gardens and biodiversity reserves, as well as nurseries of selected plants and collection of seeds. In addition to their role in conserving the resource base, the gardens and nurseries could also be used for demonstration purposes for research and education; for increasing public awareness and for providing a source of income through the sale of seeds and seedlings of medicinal plants to private agencies, village-based societies, NGOs and government departments. They would inculcate a sense of responsibility amongst the communities which manage them to conserve and protect their resources. At a later stage, large scale systematic cultivation of selected species of medicinal and

economic importance could be developed, together with cooperative management schemes such as joint forest management (JFM).

However, in order to achieve the above objectives, participants pointed to the necessity of developing extensive training programmes in relevant areas such as germination techniques; simple agroparameters and post-harvest techniques relating to drying, storage and packaging in order to minimize wastage and secure high quality raw materials. In addition, facilitation would be required in the formation of cooperative societies engaged in cultivation and marketing of medicinal plants and plant products.

Equitable Sharing of Benefits Resulting from the Use of Medicinal Plants

One final cluster of issues highlighted at the Conference involved the importance of ensuring equitable sharing of benefits resulting from the use of medicinal plants in health care, and the provision of increased livelihood security for the poor.

A recurrent theme which emerged throughout the Conference was that of the socio-economic position of tribal societies in the region, which are amongst the poorest and most economically disadvantaged. Ironically, they are also some of the most knowledge-rich societies, and case studies revealed that the TMPs, who often occupy an elevated position in their societies, generally make use of their knowledge for the benefit of the sick and the needy without asking for financial remuneration for the time spent in gathering plants and preparing the medicines. They are, however, usually compensated in kind for their services within the community.

There is thus an urgent need to develop community schemes which aim not only to preserve biodiversity but also to revitalize the economies of these tribal and indigenous communities by providing the poor with increased incomes, protecting and capitalizing on indigenous knowledge and integrating traditional medicine into the mainstream. This would involve a number of strategies, and would focus on the need to strengthen links between actors in the early stages of a production to consumption chain relating to medicinal plants, by improving collectors' and cultivators' bargaining power through access to information on prices and quality requirements. Participants recommended the establishment of trade links between tribal cooperatives, involving local NGOs as facilitators in promoting and developing value addition of products through the use of low-cost post-harvest technology, marketing, and regularizing trade. Networks of tribal associations could be set up which could pool together to determine prices, while bodies and mechanisms could be established to purchase tribal products and sell them directly to consumers at fair prices, in order to remove the commercial exploitation by traders from the production to consumption chain. It was envisaged that small-scale medicinal plants-based micro enterprises involving local level planners, conservationists and scientists, and managed by tribal cooperatives, would ultimately be set up for the production of simple drugs for common ailments, using an integrated approach with regard to cultivation, marketing and processing. Lastly, participants recommended the establishment of linkages between the pharmaceutical industry and the producers in order to promote standardization of raw materials and crude drugs, and the development of strategies to ensure that the end users of plant products invest in the development and conservation of the resource base.

One final issue discussed at the Conference relating to the sharing of benefits amongst the diverse actors within medicinal plant production to consumption chains, concerns individual and community benefits at the local level. As mentioned at the beginning of this chapter, ethnomedical knowledge relating to TFM is generally confined to individual TMPs and particular families within a community, who do not divulge it to the rest of the community. However, the resources do not belong to these individuals but are maintained and jointly managed by the community at large. It is therefore important to ensure that the entire community benefits from efforts to revitalize TFM, and not just the individual practitioners and families of healers.

The Outcome of the Conference and a Possible Future Course of Action

Before concluding this chapter, a brief discussion follows on the outcome of the Conference and on a possible future course of action resulting from its findings and deliberations.

It was widely recognized by participants that the Conference provided a unique opportunity for TFM researchers and scholars working in the region to come together in order to discuss and develop a coordinated multidisciplinary approach to the preservation and revitalization of tribal and folk medicinal plant resources in South Asia. The sharing of experiences and knowledge fostered a feeling of common purpose and resulted in the identification of common issues and constraints affecting this sector. As a result, participants learnt from each other and broadened their knowledge base and perspectives. This was manifested in the Tirupati Declaration, included at the end of this report, which was a group effort to make a broad statement of the current situation and the kinds of needs that currently exist with regard to research and development of TFM in the region. While style-edited to fit the common declaration format of organizations such as the United Nations, the Declaration is by no means "routine," as it contains a number of novel and innovative strategies and suggestions.

With regard to a possible future course of action, it was apparent during the course of the Conference that the focus should be on the collection of the types of information described earlier in this chapter, using the suggested methodology, and on the building up of a network of interest groups within the region. These would provide the foundation for the development of projects using locally-based strategies and principles, aimed at achieving the goals of sustainable and self-sustaining tribal medicine. It is envisaged that IDRC in general, and its Medicinal and Aromatic Plants Program in Asia (MAPPA) in particular, with its emphasis on preservation of indigenous knowledge and the alleviation of chronic poverty and impoverishment through the sustainable use of natural resources, and with its extensive experience in the fields of research and networking, could provide the initial support and leadership required for such a task. Consequently, multi-donor funding and involvement of all related sectors could be sought to achieve the aims and objectives described above.

Chapter 2

Abstracts of Status Reports Presented at the Conference

Chapter 2

Abstracts of Status Reports Presented at the Conference

Traditional Medicine-A Status Report

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Traditional medicine or ethnomedicine is a heterogeneous term referring to a broad range of ancient and natural health care practices which was dominant until the application of the modern scientific method in the beginning of the nineteenth century. It remains, however, a vital component of health care systems, with estimates by the World Health Organization (WHO) pointing to 80 per cent of the world's population being dependent on traditional medicine for their primary health care needs. Recognizing the importance of traditional medicine in providing primary health care, WHO called for the use of a comprehensive approach, emphasizing the need for inventories, safety standards and methods with regard to the application of medicinal plants in 1978. This was followed by a resolution in May 1987, reaffirming earlier resolutions and providing a mandate for future action relating to medicinal plants and traditional plant remedies. While declaring Health for All by 2000 AD, WHO has also recognized the importance of the cultural, social and environmental contexts of any health care system, which are deeply rooted in a community's social traditions and knowledge systems. Hence, it has emphasized the strategic role that traditional health care systems have to play in meeting this goal, especially in meeting the health care needs of rural and tribal peoples.

Within the Indian context, traditional medicine functions through two social streams. The first is the local folk stream which is prevalent in rural and tribal India. Its practitioners are individuals skilled in providing particular forms of treatment, and the "vaidyas," who are village level herbal physicians or tribal physicians. The second level of traditional medicine is the scientific or classical system, which is based on sophisticated theoretical and philosophical foundations and is codified in thousands of manuscripts. Systems like Ayurveda, Sidha, Unani, Amchi and Tibetan medicine are expressions of this stream.

Over 7,500 medicinal plant species are reported to be used by tribals across the country in contrast to about 1,200 species used in total by the major classical systems. However, while the species used by individual tribal or village communities are location-specific, the classical systems have developed in urban areas and have amalgamated, codified and synthesized the medical wisdom of a wider geographical area. A second difference between the two streams is that while the classical systems are documented, most of the local health traditions, particularly tribal medicine, are purely oral in tradition and are in danger of being lost. In recognition of this, the Ministry of Environment and Forests launched the All India Coordinated Research Project on Ethnobiology (AICRPE), which over the past 12 years has recorded valuable information on over 7,500 wild plant species used for medicine by tribals in India.

In recent years, there has been a resurgence of interest in traditional medicine and natural products throughout the world due to growing awareness of the side effects of allopathic medicine

with its dangers of overmedication. There is thus tremendous scope for traditional medicinal systems to provide cheap but safe and effective treatment for humankind. However, while traditional remedies require scientific verification and validation, an alternative approach to that used for allopathic drugs is required. Such an approach, which is integrated, combining the concepts and theoretical foundations, particularly of classical systems like Ayurveda, Sidha or Unani, with modern scientific knowledge, technology and tools, has been developed in the form of the ethnopharmacological approach. It was initiated in India at the Regional Research Laboratory, Jammu, in 1987. A fully functional ethnopharmacology laboratory has also been developed at the Tropical Botanical Garden and Research Institute (TBGRI) in Palode, Kerala.

At the wider regional level, China has set an example with regard to demonstrating the best use being made of traditional medicine in meeting the health care needs of her people through the scientific validation and upgradation of the technology of the production and administration of herbal drugs. Furthermore, the Chinese National Pharmacopoeia is perhaps the only modern pharmacopoeia in the world which gives full credit and recognition to traditional medicine.

Community Biodiversity Registers (CBR): An Action Plan for Sustainable and Equitable Development

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Revolutionary developments in the fields of information technology and biotechnology have prompted the development of new Intellectual Property Rights (IPR) regimes, as well as new regimes of management of genetic resources, embodied in the Trade Related Intellectual Property Rights (TRIPS) component of the General Agreement on Trade and Tariffs (GATT), and in the Convention on Biological Diversity (CBD). These mark the coming of an age of knowledge based biodiversity enterprises. With its wealth of scientific talent, and of genetic resources, this could be transformed into an era of unprecedented opportunities for India through the pioneering of a series of new initiatives. We should strive to build up reliable and accessible biodiversity information systems as a self-sustaining service industry through a partnership of scientific institutions, private enterprises and government. This could be organized by taking advantage of the wealth of practical ecological knowledge of village folk and the availability of large numbers of high school and college teachers and students of biology. Local self governance institutions such as the *Gram Panchayats* should be empowered to regulate and charge collection fees for access to local biodiversity resources. Furthermore, *Panchayats* should receive special grants linked to local conservation efforts. Such grants could come from a national biodiversity fund, planned and financed through a cess on biodiversity based products such as seeds or pharmaceuticals, along with international grants for the purpose of biodiversity conservation. A portion of this fund could also be employed to reward special efforts or knowledge of individuals or communities related to conservation and the sustainable use of biodiversity. An appropriate policy and legal framework should be created to enable entities such as tribal communities, fisherfolk cooperative societies or local *panchayats* to enter into specific Material or Information Transfer Agreements with the user agencies. However, apart from these cases, the flow of benefits from commercial uses of biodiversity to the local communities would be best organized through a system of grants from the national biodiversity fund, linked to ongoing efforts of conservation and documentation. Such periodic recording of biodiversity, its utilization,

conservation and knowledge would be termed as community biodiversity registers, and these would form the foundation of the entire system. Attempts to build such a countrywide system have already been initiated and are described and discussed in the paper.

Ethnobotanical Studies Conducted On the Kolha Tribe of Keonjhar District, Orissa

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This paper presents some of the findings of ethnobotanical studies carried out on the Kolha tribe of Keonjhar District, Orissa. Of the different tribes found in the region, the Kolha can be classified as being the most primitive, with some sections of the tribe still eking out a living as hunter gatherers in remote and inaccessible forest areas, situated far away from modern civilization. Besides hunting, they rely mostly on plants for their basic needs - food, shelter, clothing and other essential amenities - and they are able to sustain themselves in the absence of conventional agriculture. The pattern of their livelihood has not changed throughout the centuries. However, with the rapid intrusion of modern civilization into their remote settlements in recent years, ancient tribal traditions and the culture of these nomadic people are under considerable threat.

The Kolhas possess a wealth of knowledge on the medicinal uses of plants, which has been acquired through their centuries old experience and association with the plants. In the absence of modern medical facilities in their remote habitations, they still use their own traditional remedies constituted from the surrounding flora and fauna for the treatment of ailments. Hence studies relating to the tribal uses of plants with respect to food, shelter, clothing, medicine (including fertility and anti-fertility treatments), fodder etc. for both humans and cattle have been conducted over the last three years. Due to the construction of new roads in forest areas, indiscriminate cutting down of forest blocks, acquisition of forest land for agricultural purposes and intrusion of populations from surrounding rural and urban areas, the Kolhas have started discarding their traditional livelihoods, opting instead for employment as labourers in various developmental schemes. There is thus every reason to believe that their valuable body of knowledge relating to food and nutrition, defence and survival, religion and customs, diseases and medicines, art and literature, forestry and agriculture etc., will soon disappear.

The survey, which has been executed through field trips to remote areas inhabited by tribal communities resulted in some interesting findings regarding therapeutic and other folk uses of 80 species of plants belonging to over 42 Angiosperm methods of administration in divergent tribal communities. Ultimately, this information will be of assistance in the development of standardized therapeutic drugs for use on a wider scale.

Medicinal Plants Lore of two Primitive Tribes (Baiga and Sahariya) of Madhya Pradesh

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Madhya Pradesh, situated in the heart of the Indian Peninsula, has the largest concentration of tribal populations (approximately 16 million) in the country, constituting about 23 per cent of the total population of the State. Of the 46 scheduled tribes in the State, seven are defined as being the most primitive, and are dependent on the forests for their sustenance and livelihoods. They have been targetted by the State Government for special development efforts implemented through 96 Integrated Tribal Development Projects (ITDPs) and related schemes in the Tribal Sub-Plan (TSP). However, a combination of factors - deforestation as well as rapid socio-economic, ecological and technological change, and the resulting acculturation - in areas where TSP is being implemented, may lead to the loss of a large portion of the ethno-medico-botanical diversity of the region. The loss of every indigenous culture is accompanied by the loss of a highly developed medicinal tradition, and while plants themselves are in danger, knowledge of how to use them is disappearing at an even faster pace. There is thus an urgent need to preserve the ethno-medical knowledge of tribal peoples.

This paper presents some of the findings of ethno-medico-botanical surveys conducted on two of the most primitive tribes of Madhya Pradesh - the *Baigas* and the *Sahariyas*. The *Baiga* Tribe, which is one of the oldest and most backward aboriginal tribes in the country, is concentrated mainly in 8 districts of Madhya Pradesh. They live in villages divided topographically into hamlets and practise a subsistence economy, being dependent to a large extent on forest produce for their food supplies. The *Sahariya* tribe is mainly concentrated in the Gwalior and Chambal Divisions of north-western Madhya Pradesh. Their total population is estimated at about 417,170, and their economic condition is extremely poor. As with the *Baigas*, the forest plays an important role in the economy of the tribe, especially with regard to collection of minor forest produce and wood for craftwork. However, depletion of forests and landlessness have forced many to turn to labour, and even bonded labour, as well as to search for occupations in adjoining states.

Both of the above tribes possess a rich body of knowledge regarding the medicinal uses of herbs. Around 120 Baiga villages and several *Haats* where minor forest produce and herbal drugs are bartered or sold, and around 200 Sahariya villages were surveyed, with first hand information being collected from knowledgeable elders and medicine men.

An inventory of 247 plant species used by the *Baigas* has been prepared and samples have undergone phytochemical and biological screening. Combinations of species used to treat the most common ailments (24) identified within the *Baiga* communities, including plant parts and methods of administration, and the names of the most commonly used species have been presented in the paper. Percentages of plant species of different habits (the majority are herbs) have also been compiled.

With regard to the *Sahariyas*, 300 ethnomedicinal plants used in the treatment of about 60 diseases and ailments have been collected, identified and documented, and the dominant plant families (15) and species in the lives and economy of the tribe have been recorded. An exhaustive

list of plants used in ethnomedicine by the tribe, along with plant parts, methods of preparation and modes of application is presented.

The paper argues that while the government has established a number of health facilities in tribal areas of the State - Ayurvedic, Homeopathic and Unani dispensaries, as well as Primary Health Centres (PHCs) and Tribal Health Care Research Centres - these are not easily available to the tribal villages which are located in inaccessible areas. Tribes such as the *Baigas* and the *Sahariyas* therefore continue to depend on their medicine men, who occupy a unique position of respect in their communities, and on their herbal medicines which are deeply rooted in their culture and social organization. Tribal medicines thus have an important social and cultural role within these communities as can be seen in institutions such as the *Haat* and the *Gholol*, a cultural organization which trains adolescents in tribal customs, traditions and community work. With a view to helping tribals and traditional medical practitioners, tribal cooperative societies have been organized in the State, and the Forest Department has set up research-cum-demonstration centres and medicinal plant nurseries for the conservation and cultivation of medicinal plants. The *Van Aushadi Yojana* scheme has been launched to popularize cultivation of medicinal plants among farmers.

In order to address the problem of erosion of ethnomedical plant resources in tribal areas, with many of the species becoming rare or endangered due to over-collection, unsustainable harvesting practices and destruction of habitats, the paper proposes a number of activities. These include establishing field gene banks; *in vitro* cultures; seed storage; *in situ* conservation and cultivation to reduce pressure on wild populations. In order to preserve tribal ethnobotanical knowledge, the paper argues that there is an urgent need for compilation of tribal medicine formularies, handbooks and manuals, using WHO guidelines for the assessment of herbal medicines. Development of tribal and folk medicine can be carried out through inventories and documentation of medicinal species used in tribal societies; through the establishment of ethnobotanical gardens, preserves and herbaria in different parts of the country and through the assessment of the efficacy of medicinal plants through observation, experimentation and the application of indigenous knowledge systems. Community participation should be actively encouraged in this process, with ethnobotanical preserves being maintained by tribal societies or cooperatives, and with the formation of Traditional Medical Practitioners (TMP) associations to initiate cultivation of over-collected species and conserve remaining stocks of species favoured by commercial harvesters. The use of these long-term strategies would go a long way towards preserving the ethnomedical knowledge and traditional medicine systems of endangered tribal groups such as the Baigas and Sahariyas of Madhya Pradesh.

The Eco-System People and Conservation of Medicinal Plants: A Case Study from the Siruvani Hills, Tamil Nadu

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This paper based on a case study conducted in the Siruvani Hills in Tamil Nadu, and focusing on two tribal groups - the Mudugas and the Irulas - seeks to emphasize, from an ecological context,

the importance of the role played by tribal communities in utilizing and safeguarding medicinal plant resources without causing much depletion of these resources.

Ecologists have long recognized three categories of people based on their lifestyles and dependence on nature - the ecosystem people, who still live in their traditional habitats close to the forests, and who have a long tradition of discovery and utilization of medicinal plants; the ecological refugees, who have nearly lost their association with the forest and the biosphere people who only have access to forest resources through market mechanisms.

The role of the first category, consisting largely of tribals (including Mudugas and Irulas), rural artisans, fisherfolk and subsistence agriculturists in conserving and enhancing genetic wealth through the use of prudent resource management systems is now a topic widely discussed, as is the efficacy of traditional medicinal systems which are gaining world wide recognition. However, wanton destruction of ecosystems and the traditional habitats of ecosystem people, together with increasing demands for medicinal plant species, are posing a grave threat to the survival of many species and of associated cultural knowledge.

Ironically, the disadvantage of having more powerful and affluent parts of the world focusing attention on traditional systems of medicine has been the exploitation of these systems without recognition or reward going to those who both discovered and today conserve those same systems.

Ethnobotanical studies in South India have revealed a minimum of 1500 plant species used medicinally by different ethnic groups, which have developed traditional conservation techniques such as switching to a similar plant of a different but related species when a particular plant becomes endangered in a locality. Selections are generally made from different species of the same genus or from different genera of the same family. Women often take on the role of domesticating locally endangered species. Another method of species conservation involves the sharing of knowledge by rural and tribal people to give scientists early warnings of species loss or genetic erosion and to enable the latter to initiate timely and effective conservation strategies.

The case study discussed in this paper was conducted in the Siruvani Hills of Tamil Nadu. These hills, situated partly in the Balampatty Valley of Coimbatore and partly in the Nilambur forest division of Kerala, on the northern edge of the Nigiri Biosphere Reserve, contain forests of considerable variation in structure and composition due to climatic, edaphic and altitudinal variations. A minimum of 1500 species of flowering plants, including several rare and endangered species are found in the area, as are large numbers of medicinal plants, especially in the foothills and at medium elevations.

Out of about 25 local tribal communities, the *Irulas* and *Mudugas* are the two dominant groups inhabiting seven tribal hamlets in the Siruvani region. Both groups are traditionally subsistence agriculturists, engaging also in the collection of wild tubers and fruits as supplements to their diets.

These tribal communities, particularly the women and even the children, are well acquainted with local plant species; their uses; habitats; seasonal availability; sizes of particular plant populations and the particular physical and climatic conditions required by various species. They are also able to correctly identify closely related species. At least 200 species are used in their medicinal systems, of which 80 species belonging to 34 families and 56 genera are analysed in this paper. These include a number of extremely rare and relatively unknown evergreen forest species.

For minor ailments, plants available in the surrounding areas are used while for more serious ailments, there are specialists in traditional medicines. Great faith is placed in these medicines, often at the expense of, "hospital medicines." Supernatural powers are invoked to diagnose an illness before treatment with medicinal plants, and Gods and Goddesses are invoked before any part of a medicinal plant is harvested. Those who practise traditional medicine do not share their knowledge even with kith and kin, unless a genuine interest is shown in learning about it. This ensures that the system and its practitioners do not lose their significance in society.

In the traditional system, the whole plant is rarely used - only small quantities of leaves, bark or roots are taken. Timings too are important in harvesting plants as certain plant parts are believed to lose their therapeutic value if taken before sunrise. Further, plants are used fresh for treatment of illnesses and are never stored. It is thus evident that a valuable body of knowledge regarding medicinal plant resources and their use in traditional medicine exists among tribes such as the Mudugas and Irulas.

This paper argues that now as never before, it is crucial to develop ways and means of protecting both plant diversity and the medicinal systems that depend on them. In order to do this, it is important to work with and encourage local ecosystem people to continue their traditions and to help them manage their resources in a way that is advantageous to them as well as to the rest of the world. This has to be done before it is too late as already many medicinal plants and associated cultural knowledge are on the verge of extinction.

The Status of Ethnomedical Traditions of Thakur Tribals of Karjat, Maharashtra

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The following paper is based on a study of the ethnomedical traditions of the Thakur Tribals of Karjat Tribal Block, Maharashtra, and presents a categorization of traditional medical practitioners in the Block; their fields of expertise; the medicines they use; the methodology they follow in determining the medicinal uses of plant/animal species and some of the customs they follow when collecting medicinal plants.

Karjat Tribal Block (KTB) is located in Raigad District, at the foothills of the Western Ghats. There are 44 villages and 95 hamlets within the block, and 90 per cent of the population is tribal, predominantly Thakur (60 per cent).

A study of the health care delivery systems of KTB reveals the existence of a well organized and functional Traditional Medicine System based on Local Health Traditions (LHTs), which is autonomous and community supported. There are 10 categories of traditional medical practitioners, numbering approximately 810 in the block and specializing in the treatment of different ailments, for example, common ailments like fever, diarrhoea and dysentery and skin diseases; veterinary diseases; ailments related to bones and joints; treatment for poisons and mental disorders. These practitioners follow a well defined methodology for determining the medicinal uses of plants or plant parts based on empirical observation - whether or not the plant or plant part is eaten by any

animal or bird species and the consequent effects - as well as based on the appearance or properties of the plants. In addition, practitioners, particularly *Vaidus*, who specialize in the treatment of common ailments using plants, animals and minerals, follow a number of particular customs related to their general lifestyles as well as to the collection of medicinal plants.

The medicines used in this system are derived from locally available plants - the study revealed around 500 species of plants used for medicinal purposes by the tribals of KTB - animals and minerals. Tribal practitioners are not therefore dependent on external sources for their medicinal requirements. Further, the system is functional in all the villages of KTB, with each village having at least one *Vaidu* and one or two midwives. Primary health care through the use of tribal medicine is therefore within reach of the entire population.

By contrast, the state-sponsored official health care system based on allopathy is dependent on external inputs of medicines, financial resources and technical expertise. There are just 3 government Primary Health Care Centres (PHCs) and 3 sub-centres, all of which are located in bigger villages on the main road. The official health care system therefore reaches a limited population.

To conclude, it is evident from the study that traditional medicine has a vital role to play in the provision of primary health care and in enabling rural and tribal communities in India to achieve self reliance in their primary health care needs. However, ensuring the safety and efficacy of traditional medicinal systems is an issue that needs to be properly addressed.

The "Tharu" Community of the Indo-Nepal Region and their Interdependence on Tribal Medicine

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This paper presents a study of the use of traditional medicine by the *Tharus*, an aboriginal tribe inhabiting the Indo-Nepal border. It is confined to a study of *Tharu* populations found along the middle and eastern slopes of Nepal and the adjacent areas falling within the State of Bihar in India. The densest populations of the tribe are located within Tharuhat, an area of immense historical, political and mythological significance, situated in Chamaparan (west), which occupies 1490.3 sq. km. and is divided into 214 villages.

The paper identifies common diseases and ailments affecting *Tharu* communities, of which abdominal and skin conditions are the most important, and examines the extent and use of herbal folklore and tribal medicine.

A comparison of the use of tribal medicine with classical systems like Ayurveda and Unani, as well as with Allopathy, reveals the importance of the former in meeting in the health care needs of the majority of the population. Approximately 60.5 per cent of the population, or a little less than one lakh, lacks access to health facilities and is dependent on tribal medicine, as compared to 12.8 per cent on Ayurveda; less than 1 per cent on Unani and 25.5 percent on allopathy. The relative popularity of Ayurveda is due to the presence of an Ayurvedic college at the district

headquarters of Chamaparan (east), where a number of *Tharu* students are trained before returning to their villages to practice using medicinal plants which are available locally in ample quantities. The even higher figure recorded for users of allopathy is due to sufficient incomes for covering the expenses incurred by allopathic treatment, as well as high literacy rates in the area, resulting in a bias towards the use of modern scientific methods.

Another factor contributing to the dominance of tribal medicine is the important position occupied by tribal medical practitioners, who are sometimes given the status of priests in *Tharu* society. While their services are paid for in kind, acceptance of money is disapproved of since this is felt to adversely affect their curative powers. The socio-cultural context of tribal medicine is thus an important factor affecting its popularity and usage. A further point for consideration is the relatively low cost of tribal medicine as compared to allopathic medicine since payment in the former case consists solely of an uncooked meal for the practitioner and an offering, generally a fowl or a pigeon, made to the deity.

However, despite the importance of tribal medicine in the lives of the *Tharu* tribe, there is no government support extended in terms of policies, programmes and measures aimed at encouraging and promoting this system of medicine, and the beneficial service provided by tribal practitioners is not recognised. Further, there are no well organized markets in the region, with tribal medicines being available mainly from the practitioners. Some of the common medicines are also sold at *hatia* (local markets) and by roadside vendors in the towns. A new pattern has recently emerged with about half a dozen shops in Motihari and Betia dealing exclusively with these medicines. There is however no cultivation of plants used solely for medicinal purposes due to their low market value.

The paper presents recommendations aimed at promoting the tribal medicine system practised by the *Tharus* on the basis of the above findings. These relate to encouraging cultivation of selected species by progressive farmers in the region; encouraging community participation in projects aimed at preserving the rich natural wealth of the area; establishing fully equipped regional research centres for proper documentation of tribal medicinal plants; developing market mechanisms and infrastructure for tribal medicinal products and fostering regular interaction between regional specialists and locals to update and exchange information.

Commonly Used Important Medicinal Plants Among *Tharu* Tribal Groups in Nepal

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This paper focuses on the extent of use of important medicinal plants among *Tharu* tribal groups in Nepal, and is based predominantly on a case study carried out in a typical *Tharu* village, Sapahi, located in Bara District in central Nepal.

The paper argues that while indigenous knowledge regarding the use of medicinal plants in the tribal medicinal system practised by the *Tharus* is being eroded due to forest depletion, limited knowledge transmission and the use of allopathy, the extent of use of the traditional system of

medicine is still very high amongst this group. A list of 60 species of important medicinal plants used by the *Tharu* for treatment of specified ailments, including the plant parts used and preparation methods of the medicines is presented in the paper.

The study conducted in Sapahi village which is culturally mixed but is dominated by the *Tharu* ethnic group, which constitutes 80 per cent of the village population (5680), revealed that the village and its surroundings are rich in forest resources, including medicinal plants. The study identified and recorded the use of a number of important medicinal plant species, generally used in combinations to treat particular ailments or conditions. Methods of preparation of medicines for a total of 17 common ailments were recorded based on interviews with *Dhamis*, or traditional healers within the community.

The practice of traditional medicine by *Dhamis* forms the predominant health care system in Sapahi due to what appears to be a preference for this system as well as due to the lack of health facilities in the area. The nearest allopathic health post is located in an adjoining village at a distance of 4 km from the village, and there are no Ayurvedic or Unani facilities within easy reach of the village.

Dhamis, whose hereditary knowledge is derived from ancient traditional practices within the tribe, passed down through particular families, use locally available plants or obtain them from other parts of the country. They are accorded a high social status within their communities, and though they do not usually charge money for their treatment, they are paid in kind for their services (with wheat, paddy, corn etc.). The total cost of treatment provided by *Dhamis* is not considerably higher than that incurred through allopathic treatment.

Despite the importance of traditional medicine in the lives of the *Tharu*, from a medical as well as from a socio-cultural perspective, it has not received much support or encouragement from the Government. The policy environment in the forestry and health sectors is not conducive to its development. Thus, while the Forestry Rules of 1994 permit collection of medicinal plants from national forests, royalty is charged on the produce. Further, while the National Drug Policy of 1995 is supportive of classical systems like Ayurveda and Homeopathy, it does not address the unique nature and characteristics of tribal medicine, which cannot meet the sophisticated medical requirements laid down in the Policy.

At the community level, the nature of the knowledge transmission system, which is the property of individual families, forms a barrier towards extending and sustaining the system through community participation. Furthermore, traditional medicines are not produced on a commercial scale and do not have a market value since they are not sold by practitioners.

However, while tribal medicines are the possession of individual practitioners, the actual plants are an important source of cash in the region, with over 100 items of crude medicinal and aromatic plants being traded from Nepal to India and other countries. Quantities traded have however declined in recent years due to a decrease in the availability of wild stocks. Nevertheless, despite depletion of medicinal plants from the wild, leading to endangerment in some cases, cultivation of collected species is yet to be introduced and community forestry schemes for the sustainable management and utilization of forest resources are yet to be launched in the low lands of the Tarai.

On the basis of the above findings, the paper makes a number of recommendations relating to the need for proper documentation and preservation of traditional medicinal practices; modernization of processing methods, along with scientific validation for safety, efficacy and quality of traditional medicines, and the formulation of a national policy which promotes cultivation and conservation of medicinal plants in the region.

Current Research on Tribal and Folk Medicine in Sri Lanka

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The following paper provides a summary of the current status of research on tribal and folk medicine in Sri Lanka being carried out at the Bandaranaike Memorial Ayurveda Research Institute, where the main foci are literary, drug and clinical research. The practitioners of the indigenous system of medicine in Sri Lanka are described, together with knowledge transmission systems and common as well as specific medicines used. A brief description of the three main tribal groups in Sri Lanka is presented and the key elements of their medicinal systems are outlined. Finally, priority activities with regard to the preservation of the indigenous medicinal system of the most vulnerable of the tribal groups are proposed.

The indigenous system of medicine prevailed in Sri Lanka prior to the advent of Ayurveda in the third century BC. Though based on the principles of Ayurveda, it possesses a number of unique features related to the treatment of specific ailments and conditions. The practitioners of this system are hereditary physicians who have received their training from a teacher or from their parents, and this hereditary system of knowledge transmission is known as *Parampara wedakama*. There are a number of families specializing in specific areas of treatment and their knowledge systems are regarded as family treasures.

A number of indigenous medicinal prescriptions which are described in books dating back to the thirteenth century Dambadeniya period, are common to the Ayurveda, Siddha and Unani systems. However, there are also a number of specific preparations and medicinal plants which are used for the treatment of particular ailments and conditions such as catarrh, fractures and dislocations, jaundice and mental disorders.

With regard to tribal medicines, there are three main tribal groups practising their own unique medicinal systems in Sri Lanka. These are the *Vedda* community, which is the oldest indigenous community in the country, now confined to a few places in Uva Province; the *Ahikuntaka* community (gypsies), who live in close proximity to the towns and who make a living through snake dancing, palm reading and treating domestic animals, and the *Kinnara* or *Rodia* community who live in isolated villages and make a living through the sale of local musical instruments and items made of coir and the fibres of different plants.

Each of these communities practises its own variety of tribal medicine. Thus, the *Veddas* use two main forms of treatment - medicinal plants, a number of which have been identified, for particular ailments, and spiritual healing, with incantations and offerings made to the spirits of the deceased. The prescriptions used by the *Ahikuntaka* community are a closely guarded secret, though they

are known to use poison stones, different types of earth, arsenic and a number of plant products in their preparations. Finally, the *Kinnara* use medicines containing various human secretions, the five types of arsenic and different types of leaves ground with copper sulphate.

Of the tribes described above, the *Veddas* are the most vulnerable and face the greatest threat due to destruction and exploitation of their habitat. This is an issue which is being looked into by the government. Simultaneously, their rich medicinal knowledge resource base, which has not been fully documented and studied, is being eroded and lost. There is therefore an urgent need for the appointment of a committee of scholars to study and document the Vedda system of medicine in order to preserve it for future generations.

Chapter 3

Tirupati Declaration on Tribal and Folk Medicinal Plant Resources

Chapter 3

Tirupati Declaration on Tribal and Folk Medicinal Plant Resources

On 4-6 September, 1996, under the auspices of the IDRC Medicinal Plants Network, and hosted by the Herbal Folklore Research Centre, Tirupati, a group of experts on tribal and indigenous culture and medicine, economic botany, ethnobotany, forest and agricultural resource management, forest and agricultural economics, pharmacology, public health and socio-economic development from Bangladesh, India, Nepal and Sri Lanka came together in the South Asia Conference on Tribal and Folk Medicinal Plant Resources.

These experts came together to discuss the current status of plant-based tribal and folk medicine and to develop an action plan for the successful development of sustainable and self-sustaining systems of tribal and folk medicine, in light of the recognition that:

Tribal communities in South Asia represent the poorest of the poor in the developing world;

The vast majority of people in these communities are dependant upon tribal, folk and mostly plant-based medicines for meeting their primary health care needs;

These systems of medicine play a significant role in the lives and cultures of these people; and

The production, processing and utilization of plants for medicine offers a significant means of income generation for the people, as well as tremendous potential for increasing these socio-economic benefits for poverty alleviation.

On the basis of their discussions, the delegates to the Conference identified six major areas for future actions and developed a set of priority actions for each area agreed to in the following Declaration:

1. Networking and Coordination

- a. Noting that a number of projects are underway throughout the region, and expertise in particular areas is quite high; and
- b. Recognizing that researchers remain largely isolated from one another, with frequent duplication of effort and lack of a strategic focus;

The Conference is resolved that there is a need for more coordinated action and for development of partnerships between interested agencies.

The Conference recommends that the following activities be undertaken:

- i) Development of a Tribal Network in the IMPN Secretariat;
- ii) Broad circulation of a newsletter focused on tribal and folk medicine in the region;
- iii) Establishment of an electronic network of interested researchers;
- iv) Networking of industry interest groups for financial support of initiatives; and
- v) Development of an integrated, comprehensive, and accessible database, bringing together already-existing databases and filling in identified data gaps where existent.

2. Broadening of Ethnobotanical Research

- a. Noting that while several studies have been carried out in the region, inventorying plants and their uses, little information regarding the collection, processing, administration, significance of use, and cultural/socio-economic status of the users, has been collected; and
- b. Noting further that participation by the tribal communities themselves remains relatively low and partnerships are lacking which enrol them actively in the collection of information and decisions regarding development, and that this is a significant gap in terms of developing projects which can have immediate and lasting impacts on people's lives and on primary health care among tribal communities;

The Conference is resolved that there is a clear need for more broad-based and comprehensive documentation in ethnobotanical research.

The Conference recommends that the following activities be undertaken:

- i) Development of a comprehensive data collection methodology, beyond enumeration of plants and their uses, to provide a complete picture of the tribal medicinal systems in the locations under study;
- ii) Publication of directories of medicine men and their expertise for consultation; and
- iii) Utilization of a comprehensive methodology to lay the groundwork needed for a Network of pilot projects/model village trials on self-sustaining and sustainable tribal medicine.

3. Raising the Status of Tribal Medicine as an Effective Health Care Resource

Aware that the tremendous financial and moral support given in favour of allopathy, and even more recently to classical traditional systems of medicine, has placed tribal and folk medicinal practices at a great disadvantage in terms of their utility for local people;

The Conference is resolved that there is a need to draw greater attention to these medicinal practices and to provide a scientific basis to increase public confidence and acceptance.

The Conference recommends that the following activities be undertaken:

- i) Comprehensive research on actual use patterns at the local level to establish the importance and value of tribal and folk medicine in primary health care;
- ii) Comprehensive toxicity and pharmacological trials on those formulations reported from a number of locations in the region; and
- iii) Development of green health kits for rural and urban users; including a “green first aid kit” for emergency use.

The Conference further recommends that in all research and development activities undertaken, the following best practices be adhered to:

- iv) Clinical trials and case studies of effects of plant-based medicines be applied consistently and prior to promotion and marketing activities; and
- iv) Standards and quality control methods be rigorously applied at each level of development for all drugs under development.

4. Sustainable Management of the Resource Base

Noting that research findings from throughout the region suggest that many of the plants used by tribal communities (as well as in other systems of medicine) are vulnerable, threatened and rare;

The Conference is resolved that action is needed to ensure that the resource base of medicinal plants continues to be available for the use of local tribal communities first and foremost, as well as for the global community as a whole.

The Conference recommends that the following activities be undertaken:

- i) Development of village-level gardens and community germplasm banks;
- ii) Research on tribal conservation and production traditions and sustenance;
- iii) Training of local groups in sustainable identification, collecting and harvesting practices;
- iv) Development of planting supply information systems;
- v) Development of propagation and cultivation techniques for selected plants; and
- vi) Development, publication and broad dissemination of a Tribal Materia Medica, highlighting plants used by different ethnic groups for different ailments.

The Conference further recommends that in all research and development activities undertaken, the following best practices be adhered to:

- vii) Deposition of materials from all studies with national gene banks of medicinal and aromatic plants with appropriate agreements and protection; and
- viii) Use of standardized threat analyses to prioritize locally needed plants in all areas under study.

5. Equitable Sharing of Benefits and Increased Livelihood Security for the Poor.

- a. Noting that current market structures place tribals at a distinct disadvantage in terms of economic benefits;
- b. Aware that this lack of support is resulting in the decline of traditional knowledge as tribals faced with the need for gainful employment choose to learn other profitable income-producing skills; and
- c. Also aware that the lack of strong economic benefits derived from forests likewise increase continued overexploitation of these natural resources:

The Conference is resolved that there is a need to bring about more equitable sharing of benefits resulting from the use of medicinal plants in health care.

The Conference recommends that the following activities be undertaken:

- i) Development at the village level of cheap and low-cost post-harvest technology for value addition and increasing incomes;
- ii) Study of the impacts of cultivation and domestication on the distribution of benefits;
- iii) Development of partnerships between tribes and users of the resources, village level gardens and production and marketing cooperatives.

The Conference further recommends that in all research and development activities undertaken, the following best practices be adhered to:

- iv) Communication and wide dissemination of market and price information, as well as results of related research, to local-level producers and users.

6. Supportive Policy Environment for Development of Tribal Medicine

Recognizing that tribal medicine, subject to policies and regulations administered by a host of agencies, including those of Agriculture, Forestry, Health and Family Welfare, Tribal Welfare etc., has found itself caught between a number of existing policies and consequently has not benefited from a coherent and holistic approach to its development;

The Conference is resolved that policies regarding land tenure and rights of access, intellectual property rights, conservation of resources, medical standards and quality controls, require assessment and direction from the perspective of ensuring sustainable and self-sustaining tribal medicinal practice.

The Conference recommends that the following activities be undertaken:

- i) Production of a State-of-the-Art Review of Existing Policies affecting Tribal Medicine in the region;

Tirupati Declaration on Tribal and Folk Medicinal Plant Resources

- ii) Development of a Curricula for education on tribal and folk medicine with formal recognition (diplomas etc.);
- iii) Inclusion with appropriate cautions of tribal medicines in health care dispensaries, and employment of tribal medical doctors for consultations in primary health care centres; and
- iv) Granting of enforceable rights to tribals for self-use of forests within the context of Forest User Groups, Joint Forest Management, and similar programs in effect in particular countries of the region.

Programme

Day 1: September 4, 1996

Opening and Inauguration

Session I: The Status of Tribal Medicine and Medicinal Plants in South Asia

Presentations by several ethnobotanists and tribal specialists in specific locations will be made. Presentations will highlight the present extent of folk herbal medicinal practices; the present extent of related medicinal plant resources; the stability of the systems in relation to their resource base and other factors; any efforts made for conservation or other efforts aimed at ensuring sustainability and self-sufficiency, and the reasons for success or failure. Discussions will highlight common constraints and opportunities faced by folk medicine.

Day 2 : September 5, 1996

Session II: Conservation at the Local Level: Options and Strategies

An expert panel will present methods of conservation uniquely suited to small communities, tribal groups and villages, followed by discussions among all participants in order to explore these options and their applicability in different settings.

Session III: Collecting and Harvesting: Best Practices on the Ground

An expert panel will present collection and harvesting techniques, as well as storage methods employed for medicinal plants. Participants will work with the invited speakers to develop a suitable set of best practices in terms of sustainability and environmental preservation.

Session IV: Marketing and Enterprise: Options and Strategies

An expert panel will present various methods of enhancing the financial viability of those within tribal groups who practise and sell herbal folklore medicine. Discussions among all participants will follow to explore these options and their applicability in different settings.

Day 2: September 5, 1996 (Simultaneous Activity)

Seminar on Pharmacology and Folk Medicine

This all-day seminar will take place simultaneously on Day 2, held at the Department of Pharmacology, Sri Padmavati Mahila Visvavidyalayam. The Seminar will examine the role and importance of pharmacology in folk medicine in general, and will then address some specific case studies and examples of trials and drug developments presented by invited scientists and delegates.

Day 3: September 6, 1996s

Session V: Review of Clinical Trials on Herbal Folklore Medicines

Selected papers from the Seminar on Pharmacognosy and Folk Medicine will be presented, highlighting the major findings of the Seminar and its recommendations to the Conference.

Session VI: Plenary

Ending Ceremony

Local tribal groups participating in the work of the Herbal Folklore Research Centre will be honoured for their contribution to the medicinal plant knowledge base. The Herbal Folklore Research Centre will be inaugurated, and stage 1 of its Demonstration Project on Sustainable Herbal Folklore Medicine will be launched (with later stages to be developed based upon the recommendations and results of the conference).

Venue

The Workshop will be held at Hotel Guestline, Tirupati with accommodation and meals provided through the Hotel. The Seminar on Pharmacology and Herbal Folklore Medicine will be hosted by the Department of Pharmacology, Sri Padmavati Mahila Visvavidyalayam, with accommodation and meals provided through the University for those attending only the Seminar.

Guidelines for Preparation of Status Reports on Tribal Medicine

- Presented by: Ethnobotanists and Tribal Specialists
- Presented in: Day 1, Session 1
- Presentation Length: Maximum 20 minutes
- Drafts Due: August 15, 1996 to the Workshop Organizers.
- Requirements: All Status Reports must be confined to specific identifiable tribes or other discrete local communities in South Asia. The Status Reports should include information on each of the following, with reference to the tribe or group under study.
- A. Extent of Use of Herbal Folklore/Tribal Medicine
 - Numbers of persons using the medicine.
 - Comparison with numbers using classical systems (Ayurveda, Unani).
 - Comparison with numbers using allopathic Western medicine.
 - B. Use of Plants in Folklore Medicine
 - Specific examples of plants used
 - Importance of plants for medicines.
 - C. Social and Cultural Role/Position of Herbal Medicine
 - Economic and related conditions of the practitioners/medicine men.
 - Cost of tribal herbal medicines compared to others administered.
 - Role of government in supporting/providing folklore medicines.
 - Anecdotal information about the role of herbal medicine in daily life.
 - Any marketing systems for medicines produced.
 - D. Condition of the Natural Medicinal Plant Resource Base in the Area
 - Plants endangered or being destroyed.
 - Type of collection practices.
 - Any plants under cultivation.
 - Forest Management/Ownership situation.
 - E. Community Activities to Sustain Tribal Medicine.
 - Any activities undertaken by the tribe/group under study and explanation of success or failure.

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The proceeding of the conference on Tribal Folk Medicinal Plant Resources of South Asia present an interesting collection of abstracts of reports by eminent researchers on the subject. The publication begins with a concisely summarized reflection of the deliberations of the three day conference which has been aptly titled as *Sharing of Endangered Wisdom*. The proceeding highlights the need for systematic expansion of ethnobotanical research, value addition of the tribal and folk medical knowledge and practices, development of national and regional networking, sustainable conservation of the biological resource base, enhancement of equity through better harnessing of the traditional knowledge and implementation of enabling policies and legislation.

The main purpose of the conference was to discuss the current status of tribal and folk medicine and to develop an action plan for better understanding and systematic development of tribal and folk medicine system. The focus of the discussion was how to improve the livelihoods the vast majority of indigenous people of South Asia who are dependant upon tribal, folk and mostly plant-based medicines for meeting their primary health care needs, the conference recognized the fact the these systems of medicine play a significant role in the lives and cultures of the poor and indigenous communities and that the production, processing and utilization of plants for medicine offer a significant means of income generation for the people, as well as tremendous potential for increasing these socioeconomic benefits to the countries of the region.